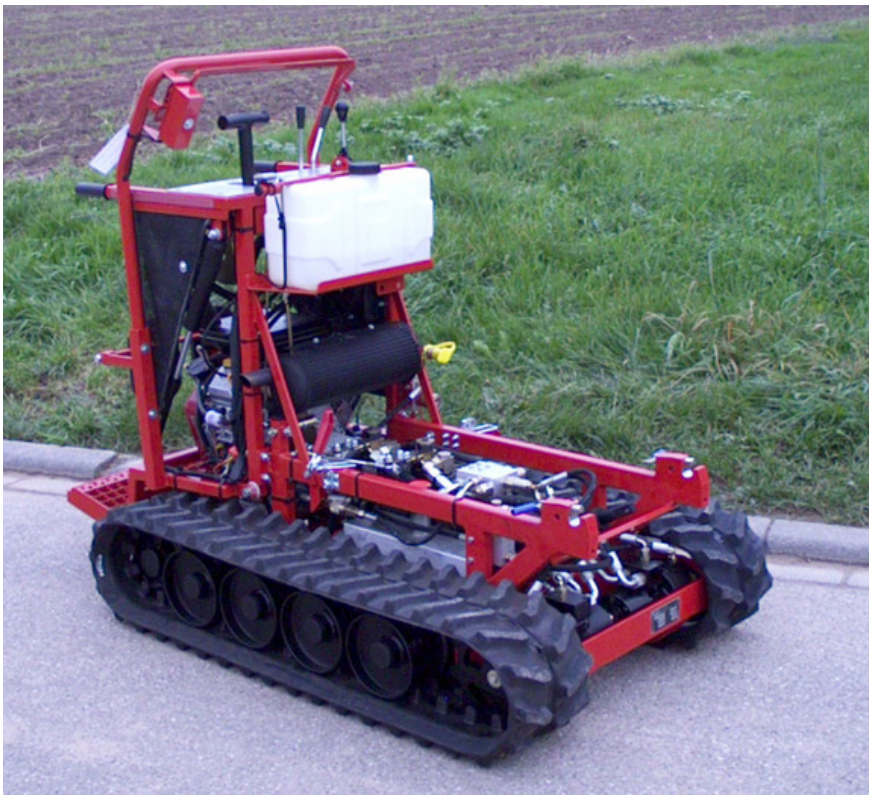
Niko

Operating Instructions
for
HY 20-11



NIKO GmbH Maschinen- & Fahrzeugbau . Im Mühlgut 1 . D-77815 Bühl-Weitenung

Preface

Dear customer,

We would like to thank you for your confidence in purchasing a NIKO-product.
We have done our best to provide you with a performance oriented and dependable product.
We ask you to please read the operating instructions carefully before starting up the machine, and to observe all the instructions. The operating instructions will give you detailed information about operation and valuable information about startup, maintenance, and service.
As you know, the warranty does not cover any claims resulting from operating error or inappropriate use.
When ordering spare parts, accessories, or when submitting complaints, please include the following data:

Type:	**Machine No:**	**Year of Build:**
HY 20-11		

Technical Improvements:

We are always trying to improve our NIKO-products. We therefore reserve the right to implement all improvements and changes we deem necessary to our products, without further announcement, and without obligation of updating machines already sold.
We are glad to answer any further questions you may have and wish you lots of fun with your new NIKO-product.

Best regards,

N I K O
Maschinen- & Fahrzeugbau

Serr Dieter, General Manager

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Product Description

This special machine was built for use on inclines, in swampy areas, and uneven and difficult to reach areas. The application starts where others have already stopped: At an inclination of 30 % – 65 %, depending on the ground conditions!

It's low weight, minimal ground pressure (easy on the ground surface), the ease in handling and work safety are baffling. All accessory units are hydraulic driven.

1. Appropriate Use

The hydrostatic Mini-Caterpillar HY 20-11 is exclusively intended for the following use:

- For driving on uneven ground and on steep inclines.

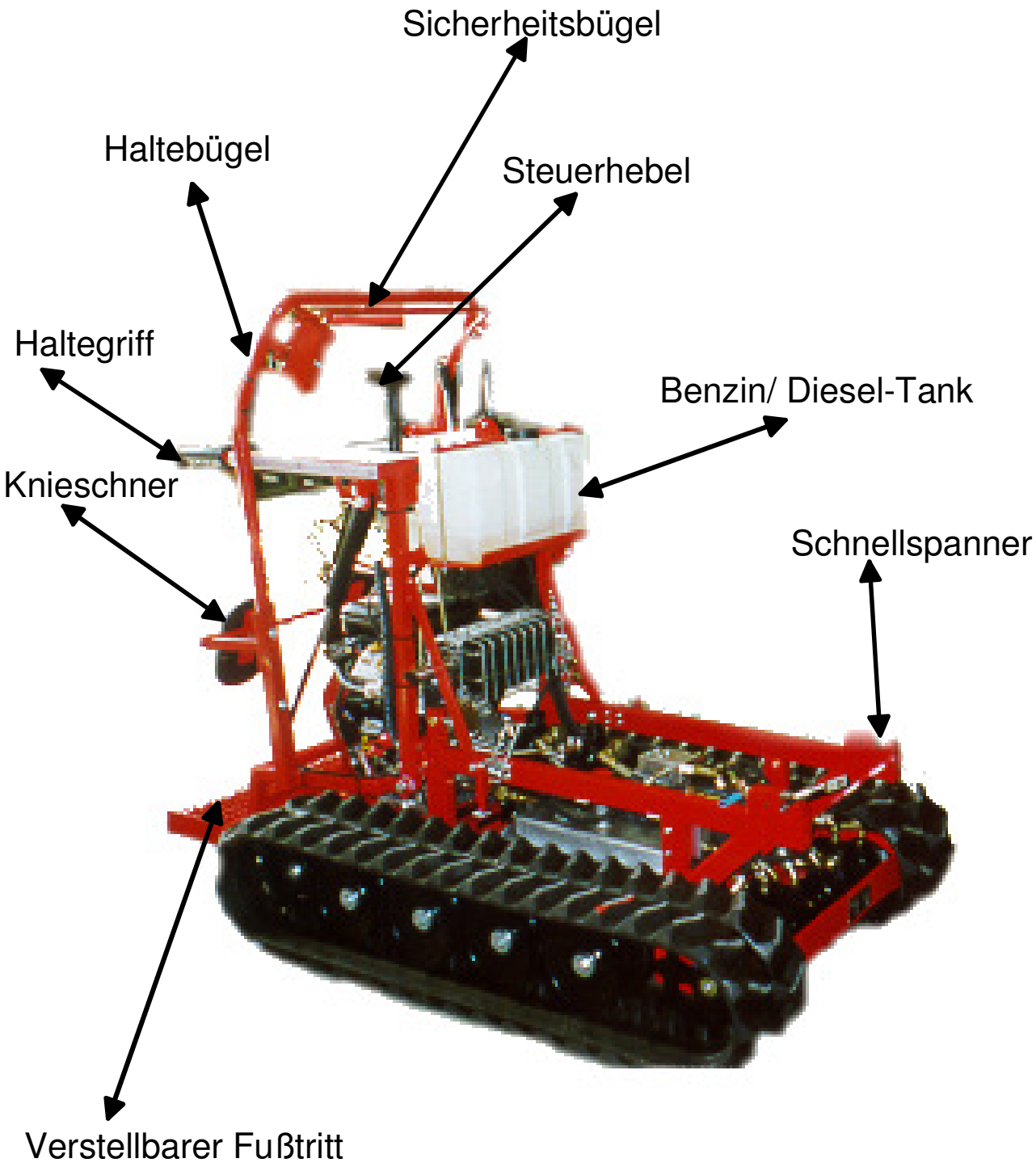
The machine is not intended for any other purpose than described above –
any other use is considered inappropriate use.
We especially note here that it is prohibited to

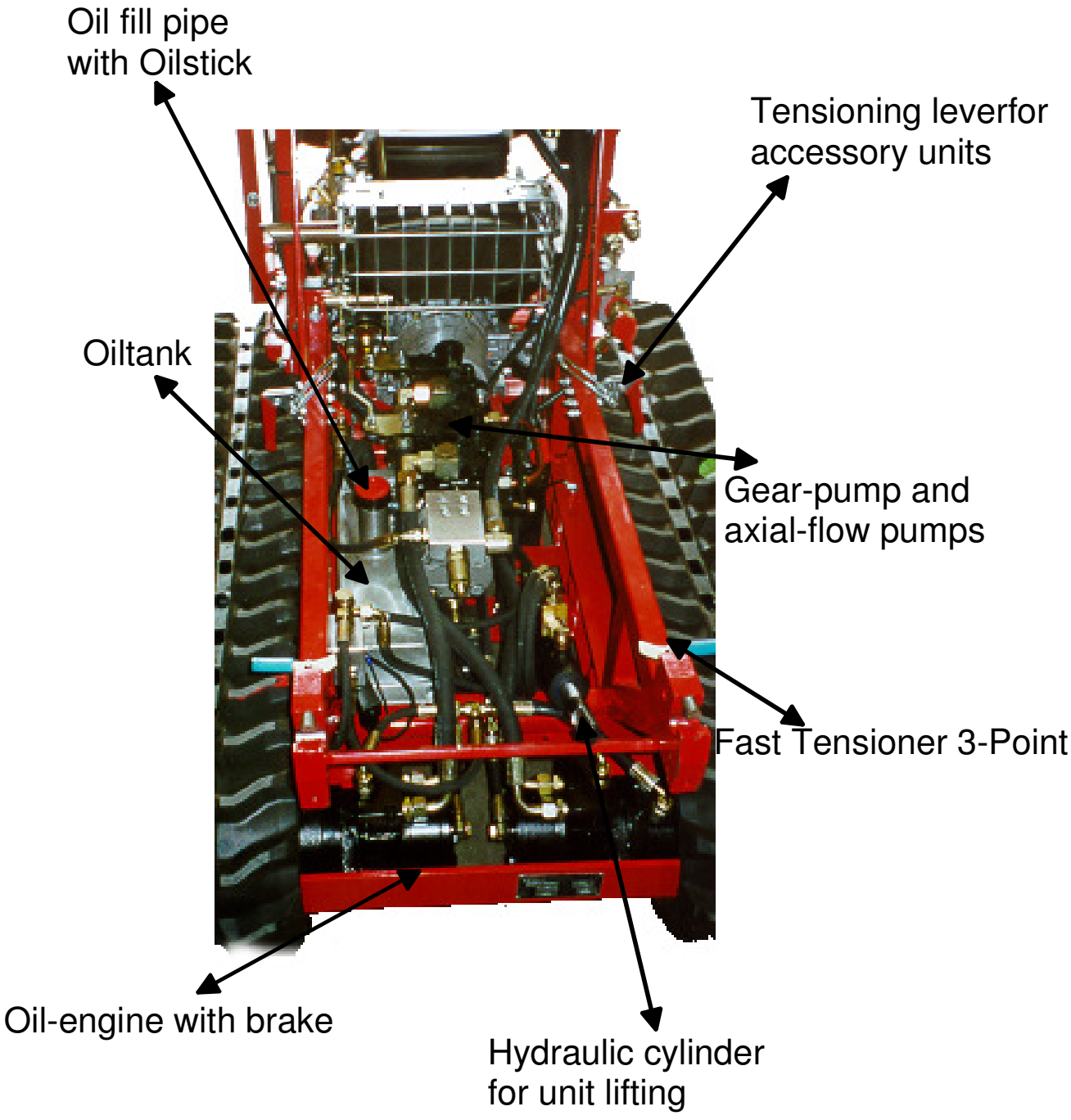
- drive on macadamized surfaces for extended periods of time
- drive in street traffic
- install foreign accessory units. Only NIKO-accessory units may be used.

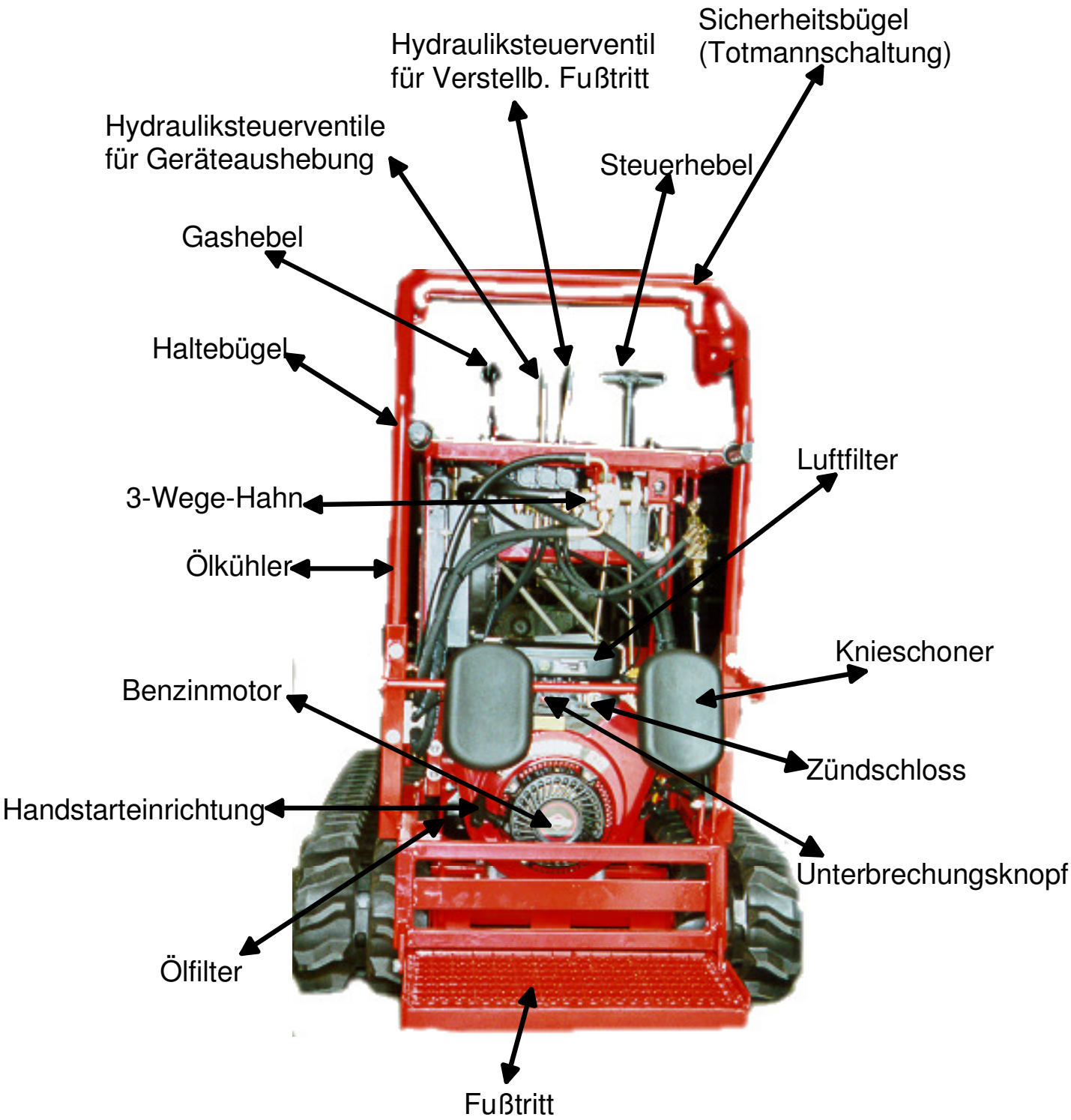
Observe all technical data.

2. Assembly

Sicherheitsbügel	Safety bar	Benzin/Diesel-Tank	Fuel/diesel tank
Haltebügel	Holding bar	Knieschoner	Knee protector
Steuerhebel	Control lever	Haltegriff	Holding grip
Schnellspanner	Fast tensioner	Verstellbarer Fußtritt	Adjustable foot step


Sicherheitsbügel
Haltebügel
Steuerhebel
Haltegriff
Benzin/ Diesel-Tank
Knieschner
Schnellspanner
Verstellbarer Fußtritt


Oil fill pipe
with Oilstick
Tensioning leverfor
accessory units
Oiltank
Gear-pump and
axial-flow pumps
Fast Tensioner 3-Point
Oil-engine with brake
Hydraulic cylinder
for unit lifting


Sicherheitsbügel
(Totmannschaltung)
Hydraulikventil
für Verstellb. Fußtritt
Hydraulikventile
für Geräteaushebung
Steuerhebel
Gashebel
Haltebügel
Luftfilter
3-Wege-Hahn
Ölkühler
Knieschoner
Benzinmotor
Zündschloss
Handstarteinrichtung
Unterbrechungsknopf
Ölfilter
Fußtritt

3. Functional Description

Startup Procedure

Pull the choke lever on the engine when the engine is cold, in driving direction to the left and turn the ignition key clockwise. As soon as the engine starts up, the choke can first be reduced, then released completely. Once the engine is warmed up it is not necessary to pull the choke, but the interrupt button has to be activated.

Driving the Caterpillar

After the engine has started up, first slightly pull in the safety bar so that it is located between both dead man buttons, then the control lever can be operated.

- Pull lever B in far enough to free up both switches (approx. halfway).
- Move lever A in driving direction and adjust the driving speed.
- Pull lever B up to the stop (cruise control).
- Now only the left/right direction can be adjusted with lever A.
- To newly adjust driving direction and speed, bring lever B to center position.
- When lever B is brought to home position, the machine brakes immediately (dead man switch).
  (Only use lever C when operating with accessory units)

When the safety bar is released the brake engages immediately (dead man switch), and the caterpillar stops immediately.
The engine's speed (rpm) can be adjusted with the gas lever.

By pressing the control lever forward or backward the caterpillar moves into the respective direction.

The speed can be varied by moving the control lever.
It can be fixed by pulling the safety and holding levers (cruise control).

Turning the control lever to the left or right changes the driving direction accordingly. This is also possible when the cruise control is active.

Hydraulic Control Valves

Hydraulic Control Valve for Adjustment of the Foot Step (on Right, in Driving Direction)

By pressing the control valve lever in driving direction, the foot rest and the holding bar lift upward and to the front, so that it is possible to stand horizontally above the machine when driving uphill. For downhill driving the foot step has to be moved to the initial position by pulling the control valve lever back.

Hydraulic Control Valve for Hydraulic Unit Lifting (Moving)

By pulling the control valve lever against driving direction the accessory units can be lifted up, by pulling the lever into driving direction they can be lowered.

When fertilizer spreader or turbo-sprayer with movable frames are attached, the units are shifted to the front or the rear.

3-Way Shut-Off valve with Hydraulic Connections

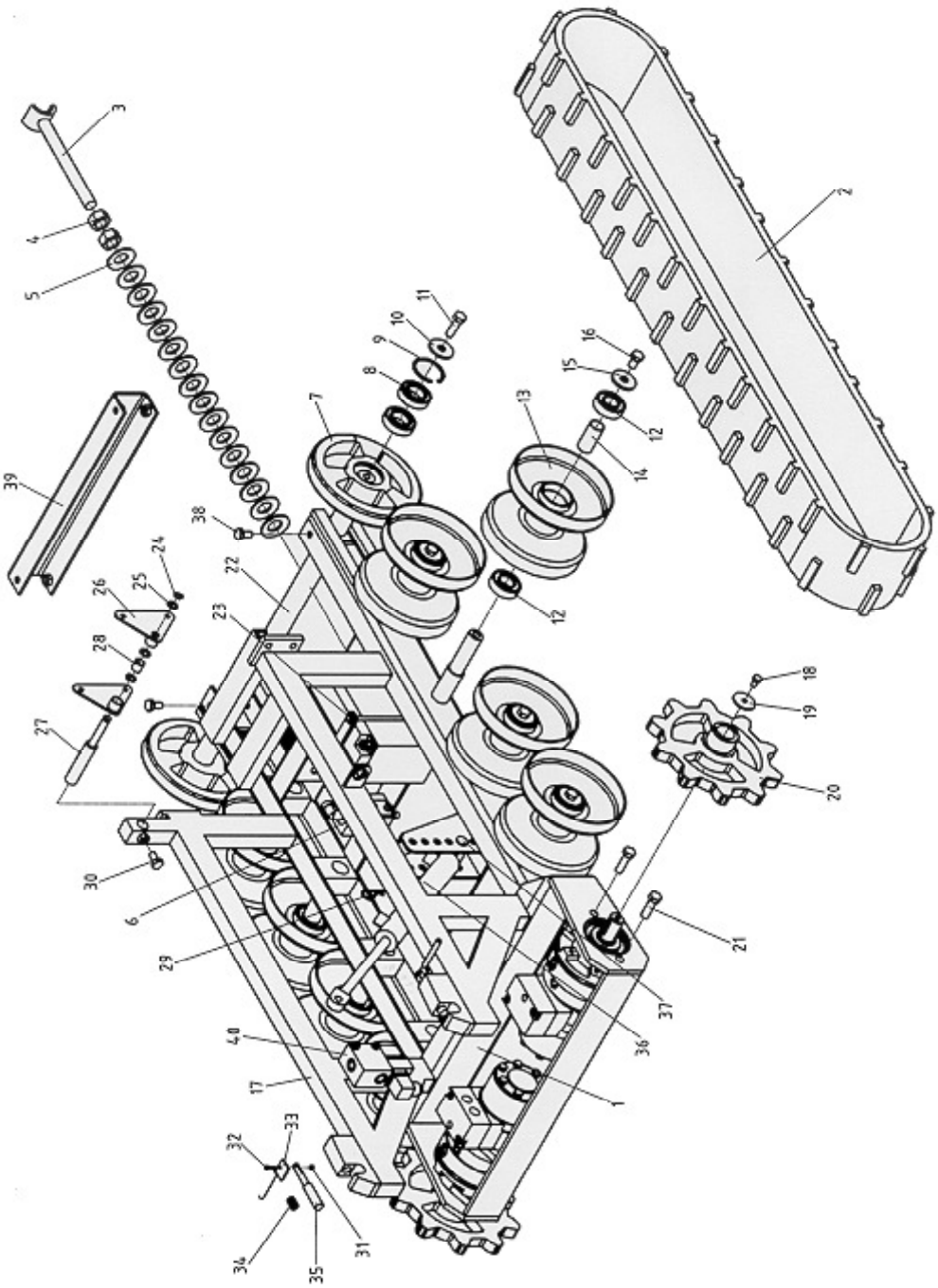
For oil supply of hydraulically driven accessory units, such as leave cutter, fertilizer spreader, stacker, and rod brush.
Only activate shut-off valve when accessory units are used (lever C, see diagram on previous page).
For this, please observe the General Safety Guidelines.

4. Technical Data

Dimensions

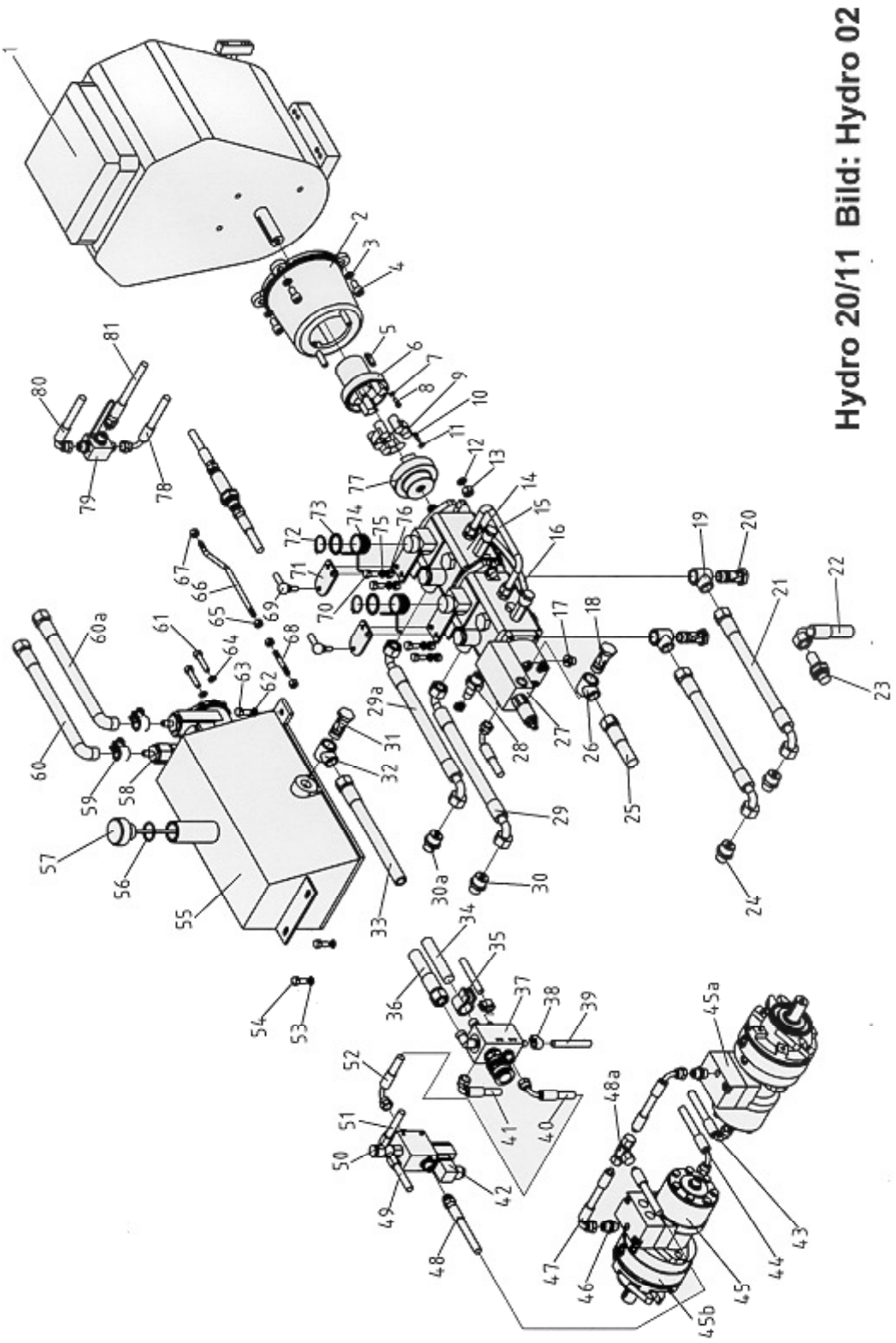
Length: 1.66 meters
Width: 0.90 meters
Height: 1.30 meters
Weight: 400 kg

- Robust frame (carrying capacity up to 1200 kg)
- Hydraulically adjustable foot step
- Hydrostatic drive via dual pump, 11 cbm
- 2 oil engines, 7 hp each
- Oil-cell multiple-disk brake
- Dual control valve or triple control valve at additional charge
- Specialty oil filter with injector
- Electro-magnetic brake
- Rubber chains 230 x 38 x 72 cm, or alternately 190 x 38 x 72 cm
- Special 3-point holder
- 4-cycle-fuel engine, 20 hp
- Dead man switch
- Operating hour counter
- Odometer
- Double-acting stroke cylinder
- Oil cooler
- Continuous speed 0 – 8 km/h, forward and backward

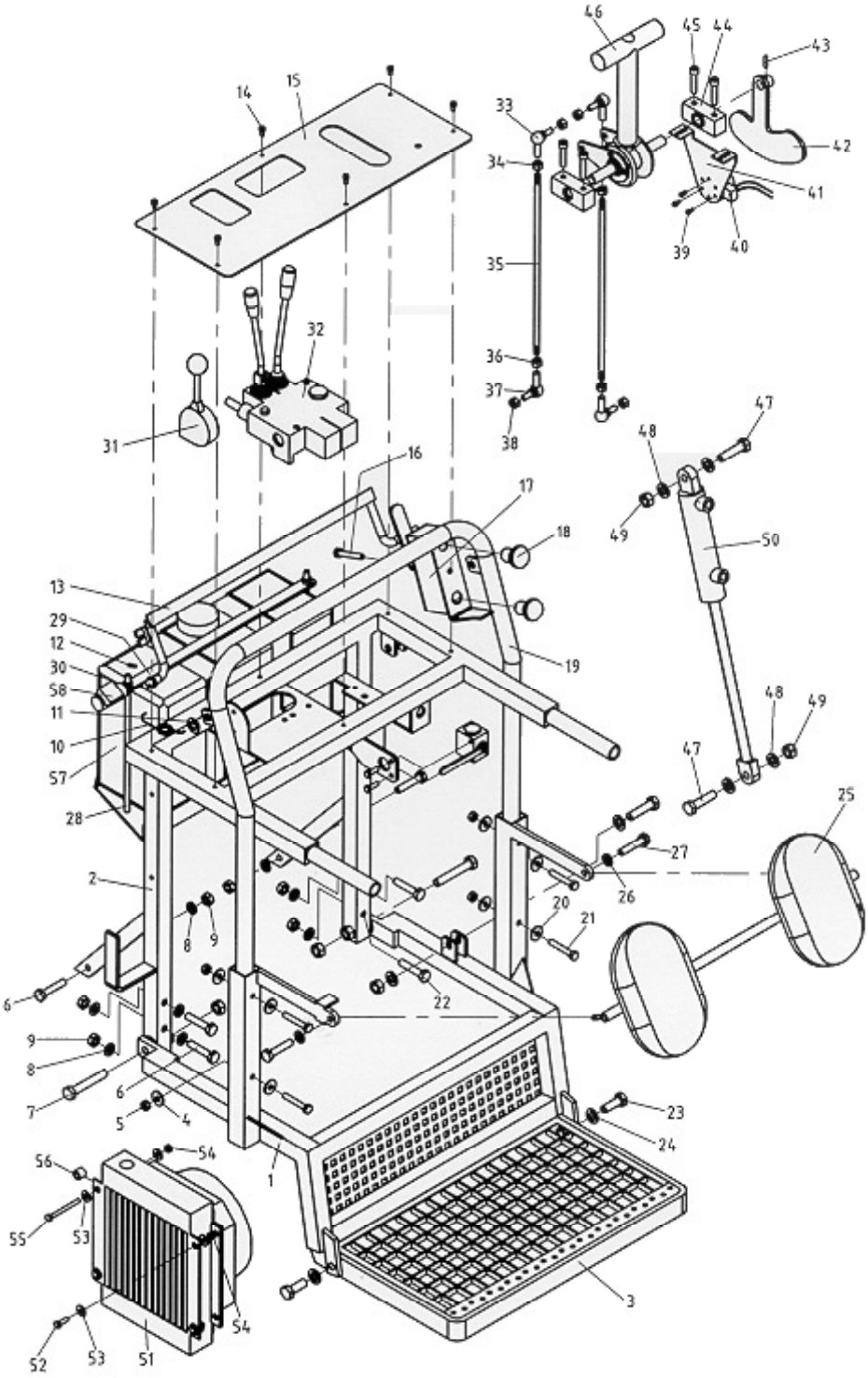


Hydro 20/11 Bild: Hydro 01

Art. No.	Pos. No.	Description
50101	Pos. 1	Base frame
50102	Pos. 2	Rubber chain 38x72x200 / 38x72x230
50103	Pos. 3	Chain tensioner M20x200
50104	Pos. 4	Tensioning nut M20
50105	Pos. 5	Spring washer, 16 pcs. Ø25x50x3
50106	Pos. 6	Distributor
50107	Pos. 7	Guide wheel Ø200
50108	Pos. 8	Ball bearing no. 6006 2 RS
50109	Pos. 9	Locking ring DIN 472
50110	Pos. 10	Washer Ø13x37 DIN 9021
50111	Pos. 11	Hex head scew M12x20 DIN 933
50112	Pos. 12	Ball bearing no. 6204 2 RS
50113	Pos. 13	Drive wheel
50114	Pos. 14	Spacer pipe Ø21x25x52
50115	Pos. 15	Washer Ø10.5x30 DIN 9021
50116	Pos. 16	Hex head screw M10x16 DIN 933
50117	Pos. 17	Frame top
50118	Pos. 18	Hex head screw M8x25 DIN 933
50119	Pos. 19	Washer Ø9x50x6
50120	Pos. 20	Chain wheel Z10
50121	Pos. 21	Hex head screw M12x50 DIN 931
50122	Pos. 22	Clamping axle Ø35
50123	Pos. 23	Battery, 12 volt, 20 amp / Varta 52012
50124	Pos. 24	Locking ring A12 DIN 471
50125	Pos. 25	Cu-washer Ø12x16x1 DIN 7603
50126	Pos. 26	Control plate
50127	Pos. 27	Control bolt
50128	Pos. 28	Socket, brass Ø12x16x16
50129	Pos. 29	Safety pin
50130	Pos. 30	Hex head screw M8x20 DIN 933
50131	Pos. 31	Nut M4 DIN 985
50132	Pos. 32	Allen head screw M4x16 DIN 912
50133	Pos. 33	Tensioning lever
50134	Pos. 34	Pressure spring
50135	Pos. 35	Tensioning bolt
50136	Pos. 36	Cylinder
50137	Pos. 37	Bolt
50138	Pos. 38	Hex screw M10x20 DIN 933
50139	Pos. 39	U-traverse
50140	Pos. 40	Solenoid


Hydro 20/11 Bild: Hydro 02

Pos.No.	Art. No.	Description	Pos.No.	Art. No.	Description
Pos. 1	50301	Lower frame / foot step	Pos. 30	50330	Nut M8 DIN 934
Pos. 2	50302	Upper frame	Pos. 31	50331	Gas lever
Pos. 3	50303	Step	Pos. 32	50332	Control valve
Pos. 4	50304	Washer M8 DIN 125	Pos. 33	50333	Control joint right M8
Pos. 5	50305	Nut M8 DIN 934	Pos. 34	50334	Nut
Pos. 6	50306	Hex head screw M10x50 DIN 33	Pos. 35	50335	Control rods, length 335mm
Pos. 7	50307	Hex head screw M10x75 DIN 933	Pos. 36	50336	Nut left M8
Pos. 8	50308	Washer M10 DIN 125	Pos. 37	50337	Control joint left M8
Pos. 9	50309	Nut M10 DIN 934	Pos. 38	50338	Nut M8 DIN 934
Pos. 10	50310	Pressure spring	Pos. 39	50339	Allen head screw M4x6 DIN 912
Pos. 11	50311	Washer Ø12.5	Pos. 40	50340	Solenoid
Pos. 12	50312	Pin Ø3.5x30	Pos. 41	50341	Solenoid plate
Pos. 13	50313	Safety bar	Pos. 42	50342	Solenoid, mounting plate
Pos. 14	50314	Allen head screw M5x10 DIN 12	Pos. 43	50343	Pin Ø5x25
Pos. 15	50315	Aluminum cover plate	Pos. 44	50344	Aluminum flange with bearing
Pos. 16	50316	Hex head screw M8x55	Pos. 45	50345	Hex head screw M6x16 DIN 933
Pos. 17	50317	Cover housing	Pos. 46	50346	Control lever
Pos. 18	50318	Control button	Pos. 47	50347	Hex head screw M12x50 DIN 933
Pos. 19	50319	Holding bar, pivotable	Pos. 48	50348	Washer M12 DIN 125
Pos. 20	50320	Washer M8 DIN 9021	Pos. 49	50349	Nut M12 DIN 985
Pos. 21	50321	Hex head screw M8x50 DIN 933	Pos. 50	50350	Stroke cylinder
Pos. 22	50322	Hex head screw M10x50 DIN 933	Pos. 51	50351	Oil cooler
Pos. 23	50323	Hex head screw M12x35 DIN 933	Pos. 52	50352	Hex head screw M6x20 DIN 933
Pos. 24	50324	Washer M12 DIN 125	Pos. 53	50353	Washer M6 DIN 9021
Pos. 25	50325	Knee protector	Pos. 54	50354	Nut M6 DIN 985
Pos. 26	50326	Washer M10 DIN 125	Pos. 55	50355	Hex head screw M6x65 DIN 933
Pos. 27	50327	Hex head screw M10x50 DIN 33	Pos. 56	50356	Spacer
Pos. 28	50328	Hex head screw	Pos. 57	50357	Fuel tank
Pos. 29	50329	Mounting plate	Pos. 58	50358	Odometer


Hydro 20/11 Bild: Hydro 03

Art. No.	Pos. No.	Description	Art. No.	Pos. No.	Description
50201	Pos. 1	V-motor, 2-cylinder	50243	Pos. 43	Leakage oil line
50202	Pos. 2	Aluminum flange	50244	Pos. 44	Leakage oil line
50203	Pos. 3	Washer Ø10.5	50245	Pos. 45	Hydro brake
50204	Pos. 4	Allen head screw M10x30 DIN 912	50245a	Pos. 45a	Brake switch valve
50205	Pos. 5	Fitted key	50245b	Pos. 45b	Hydraulic motor
50206	Pos. 6	Motor clutch, Ø 25 inside	50246	Pos. 46	Double nipple
50207	Pos. 7	Washer Ø10.5	50247	Pos. 47	Brake hose wheel
50208	Pos. 8	Hex head screw M8x25 DIN 933	50248	Pos. 48	Brake hose
50209	Pos. 9	Rubber damper	50248a	Pos. 48a	T-piece
50210	Pos. 10	Allen head screw M5	50249	Pos. 49	Brake hose
50211	Pos. 11	Washer Ø5.5	50250	Pos. 50	Banjo bolt
50212	Pos. 12	Washer Ø10.5	50251	Pos. 51	Brake hose
50213	Pos. 13	Nut M10	50252	Pos. 52	Brake line
50214	Pos. 14	Axial-flow pump APVC-11+11200 Pb4RS1	50253	Pos. 53	Washer Ø8.5
50215	Pos. 15	Connection pipe	50254	Pos. 54	Hex head screw M8x16 DIN 933
50216	Pos. 16	Connection hose	50255	Pos. 55	Oil tank
50217	Pos. 17	Hose nipple DN10 - 3/8"	50256	Pos. 56	O-ring
50218	Pos. 18	Hollow screw	50257	Pos. 57	Oil fill plug Ø1" with oil stick
50219	Pos. 19	Fitting connection RSWV 15l	50258	Pos. 58	Hose nipple DN 16 - ¾"
50220	Pos. 20	Banjo bolt ½"	50259	Pos. 59	Hose clamp Ø16-25
50221	Pos. 21	Pressure hose DN 12 2 S/N motor	50260	Pos. 60	Suction hose DN 16
50222	Pos. 22	Pressure line	50260a	Pos. 60a	Return hose
50223	Pos. 23	Double nipple	50261	Pos. 61	Stud M10x30
50224	Pos. 24	Fitting connection GES 15l ½" double nipple	50262	Pos. 62	Washer Ø8.5
50225	Pos. 25	Pressure line	50263	Pos. 63	Hex head screw M8x16 DIN 933
50226	Pos. 26	Slewing joint	50264	Pos. 64	Washer Ø10.5
50227	Pos. 27	Volume separator	50265	Pos. 65	Nut right
50228	Pos. 28	Suction connection DN 16 - ½"	50266	Pos. 66	Control linkage
50229	Pos. 29	Pressure hose motor	50267	Pos. 67	Nut M8 left
50229a	Pos. 29a	Pressure hose motor	50268	Pos. 68	Control linkage
50230	Pos. 30	Double nipple	50269	Pos. 69	Joint M8
50230a	Pos. 30a	Double nipple	50270	Pos. 70	Hex head screw M8x20 DIN 933
50231	Pos. 31	Banjo bolt 3/8"	50271	Pos. 71	Extension plate
50232	Pos. 32	Fitting connection RSWV 12l-3/8"	50272	Pos. 72	Safety ring Ø30 outside
50233	Pos. 33	Suction hose DN 10	50273	Pos. 73	Washer Ø30x38x2.5
50234	Pos. 34	Leakage oil line	50274	Pos. 74	Torsion spring Ø3
50235	Pos. 35	Pipe clamp	50275	Pos. 75	Washer Ø8.5
50236	Pos. 36	Leakage oil line	50276	Pos. 76	Nut M8
50237	Pos. 37	Manifold hydraulic oil	50277	Pos. 77	Clutch pump side
50238	Pos. 38	Hose clamp	50278	Pos. 78	Pressure line
50239	Pos. 39	Leakage oil line	50279	Pos. 79	3-way shut-off
50240	Pos. 40	Leakage oil line	50280	Pos. 80	Pressure line
50241	Pos. 41	Leakage oil line	50281	Pos. 81	Return
50242	Pos. 42	Magnetic switch			

EC-Conformity Declaration

According to II A of EG-Machine Guidelines (89/392/EWG)

The manufacturer:	**NIKO GmbH Maschinen- & Fahrzeugbau** **Im Mühlgut 1** **D-77815 Bühl-Weitenung Germany**
Hereby declares, that the machine described as follows:	**NIKO-Climber Type HY 20-11**
	Machine No.
Complies with the safety and health requirements of the following EC-Guidelines:	**EC-Machine Guidelines 89/392/EEC**
	Version 93/44/EEC

Harmonized standards applied:

DIN EN 292	Safety of machines:
Part 1	Basic definitions, general design guidelines
Part 2	Technical guidelines and specifications
DIN EN 294	Safety distances to avoid contact of upper body parts with dangerous area
DIN EN 349	Minimum distances to avoid pinching of body parts
	Machine safety; emergency-stop device
DIN EN 418	Machine safety; general requirements for electrical machine equipment
DIN EN 60204	
Part 1	

:

This conformity declaration is voided by constructive changes, affecting both technical data stated in the operating instructions and appropriate use, altering the machine significantly!

Bühl, Date

Serr Dieter, General Manager

General Safety Information

1. Operator Care

The Caterpillar Hydro 20-11 was constructed and manufactured according to an endangerment analysis and after careful selection of the harmonized norms to be observed, as well as further technical specifications. It fulfills state-of-the-art requirements and ensures a maximum of safety.

However, these safety standards can only be maintained in practical use when all necessary measures are taken. It is the responsibility of the machine operator to plan these measures and monitor their execution.

The operator especially has to make certain, that

- the machine is only used for the intended purpose (see chapter ‘‘Product Description‘‘).
- the machine is only operated in faultless and functional condition, and especially, that the functionality of the safety devices is regularly checked.
- personal safety equipment for operating personnel, maintenance personnel, and repair personnel is available and being used.
- the operating instructions are complete and in readable condition, readily available at the machine operating site.
- the machine is only operated, maintained and repaired by qualified and authorized personnel and that the personnel is instructed regularly as to applicable questions of work safety and environmental protection and has knowledge of the operationg instructions and, especially, the safety information.
- all safety and warning labels remain on the machine, and are in readable condition.
- aside from the information in the operating instructions, the generally applicable safety and accident protection guidelines are observed.
- applicable regulations are observed when using official roadways.
- before starting work, you know about all devices and control elements, as well as their functions. When work is already in progress it will be too late for this!
- the engine is started only from the driver seat. The engine may not be started by hot-wiring the electrical connections on the starter, since the machine may start moving immediately.
- the clothing of the driver fit tightly. Avoid baggy clothing.

- Check the immediate area before starting to drive (!!!CHILDREN!!!). Make sure you can see sufficiently!


- Do not start the engine in closed rooms. (DANGER OF SUFFOCATION)!

- Take care when handling gasoline – increased danger of fire!!! Never refill gasoline near open flames or sparks. DO NOT SMOKE while refilling gasoline!!!


1. Operator Care

- Before refueling shut down the engine and pull the ignition key. Do not refuel in closed rooms. Wipe away spilled gasoline immediately (danger of ignition).
- To avoid danger of fire, keep machine in clean condition!
- Be careful when handling battery acid (POISONOUS & CORROSIVE) !
- Check the caterpillar for traffic and operating safety before each startup !
- The vehicle may only be operated by persons who are in good physical and mental condition. It is not allowed to take medication or drink alcohol before operating the vehicle.
- The vehicle may not be operated by minors.
- It is prohibited to transport passengers!
- The driving speed must be adapted to the conditions of the terrain.
- When driving on curvy terrain with attached or mounted attachments, the additional length and the flywheel mass have to be considered!
- Secure the caterpillar against rolling, shut down the engine. (By shutting down the engine the hydraulic brake engages). Pull the ignition key.
- Never leave caterpillar unattended as long as the engine is running.
- Don't ever leave the driver seat during operation.
- Lower attachments completely before leaving the caterpillar!
- Hydraulic fluid leaking at high pressure (gasoline, hydraulic oil) can penetrate the skin and cause serious injuries. So please consult a physician immediately, otherwise serious infections may result.
- The mounting of the chain requires sufficient knowledge and safety precautions.
- Check screws and connecting elements for tightness and retighten, if necessary.
- The chain needs to be retightened initially after approx. 10 hours, after that when needed.
- When working on electric equipment always remove the ground from the battery.
- Mount attachments only with the recommended devices.
- Only operate the caterpillar when all safety devices are attached and in proper position.
- The driving speed always has to be adapted to the terrain.

2. Explanation of Safety Symbols

The following safety symbols are used in these Operating Instructions. The symbols are intended to specifically make the reader aware of adjacent safety information.

These symbols should make you aware that there is danger to life and personal health.

Caustic Materials

Ätzende Stoffe

Fire Hazard

Corrosive Materials

Poisonous

Caution Children

Danger of Suffocation

Smoking Prohibited

Fire Hazzard

Transport

To avoid machine damage or life threatening injuries during setup of the machine, the following points absolutely have to be observed:

- Transport of the machine may only be handled by qualified persons in observance of the safety information.
- The machine may only be lifted using the holding points provided. For transport of the machine only carrying devices and hardware described here may be used.
- Also read the chapter on ‘‘General Safety Information‘‘.

1. Dimensions and Weight

- Total length 1.66 meters
- Total width 0.90 meters
- Total height 1.30 meters

2. Dependable Transport Devices and Aids

The caterpillar can be transported on a pallet with a fork lift.

3. Transport to the Operating Site

The caterpillar gets transported to your site on a truck or trailer.

Startup

To avoid machine damage or life threatening injuries during startup of the machine, the following points absolutely have to be observed:

- Assembly and installation of the machine may only be done by qualified persons in observance of the safety information.
- Before first startup, check that all tools and foreign parts are removed from the machine.
- Test all safety devices and the emergency-stop switching them on and off before starting with operation.
- (Before startup, check the running direction of the motor)
- Also read the chapter ‘‘General Safety Information‘‘.

Operation

To avoid machine damage or life threatening injuries during operation of the machine, the following points absolutely have to be observed:

- The machine may only be used/operated for the purpose it is intended for.
- Before startup of the machine, inform yourself about appropriate action in case of breakdown.
- Before startup of the machine, check the functions of the following units:
    - Protective covers and
    - emergency-stop switch
    - Also read chapter "General Safety Information".

1. Operator Working Area

The exclusive work place of the driver is the driver seat.

2. Operation

Basic Rule:

- Check the caterpillar for traffic and operating safety before every startup.

Transport of persons, passengers, operators:

- Nobody except the driver himself may be transported

Driving Operation:

- The driving speed has to be adapted to the environmental conditions and attachments mounted.
- When driving on curvy roads with connected or mounted attachment, the additional length and the flymass of the attachments have to be observed.
- Never leave the driver seat while the vehicle is in operation – danger of accident!

Leaving the Caterpillar

- Secure the caterpillar against unintended movement when leaving.
- Shut down the engine.
- Pull the ignition key.
- Never leave the caterpillar unattended while the engine is running.
- Never leave the driver seat during operation.
- Lower the attachments completely before leaving the caterpillar.

Attachment Units

- Attachments may only be fastened with the recommended fastening devices.

1. Only operate the caterpillar when all safety guards are attached and in proper position.

- **Only NIKO-attachment units may be used. NIKO is not liable for the use of any other attachment.**
- There is danger of injury when mounting attachments to the caterpillar.
- There is danger of being pinched and/or cut in the area of the 3-point system.
- Do not step between the caterpillar and the attachment during remote operation of the 3-point system.
- It is not allowed to stand between caterpillar and attachment if the vehicle is not secured against rolling with the locking brake and/or blocks.
- When driving curvy roads with connected or mounted attachments also observe the extra length and the flymass of the attachment.

Maintenance and Service

To avoid machine damage or life threatening injuries during maintenance of the machine, the following points have to be observed under all circumstances:

- All working steps for maintenance of the machine absolutely have to be conducted in the order listed.
- First secure the immediate area for maintenance of the machine.
- Shut down all power supplies and secure them against unintended restart.
- Shut down all compressed air units.
- Only use the operating fuels recommended.
- Only use spare parts specifically listed in our spare parts lists.
- Also read chapter „General Safety Information“.

1. Cleaning and Lubricating

Clean and lubricate all clutches, plugs, and movable parts after every operation.

2. Service

- Check chain tension initially after approx. 10 hours, afterwards at least every 50 hours and adjust, if necessary.
- Retighten lug nuts after 50 operating hours.
- Change motor oil after approx. 50 hours.
- Change hydraulic oil and filter after approx. 150 hours.
- Check or change fuel filter and spark plugs.
- Check valve adjustment (intake 0.10 mm, outlet 0.15mm)
- Clean and oil carburetor and steering linkage.
- Clean motor oil cooler by freeing it thoroughly from dirt and grass.
- Check chain tension and adjust, if necessary.
- Check hydraulic connections and hoses for tightness.
- Observe the maintenance plan provided by the manufacturer.
- Periodically clean motor oil cooler and steering linkage by freeing them thoroughly from dirt and grass.

Briggs & Stratton

Oil filter	No. 492932
Air filter	No. 394018S
Air filter, rubber	No. 272490S
Spark plugs	No. 491055
Hydraulic filter	No. E.084-78
Oil combination	No. 10W-30MC

Engine Maintenance

- Do not perform any maintenance work while the engine is running.
- When working on the engine always disconnect the battery (minus position).
- Secure the standing caterpillar on inclines using blocks.
- Pull the ignition key.
- Only refill fuel when the engine is shut off.
- Observe the recommended quality of oil and fuel, and store them only in approved containers.
- Caution when draining hot oil – danger of scalding!
- Dispose of used oil in a responsible manner.
- Oil and cooling agent are under pressure – danger of scalding!
- Reinstall safety devices after service.
- Do not use starter liquid when using electric starter.

- The starter liquid is flammable and explosive.
- Empty used and apparently empty pressurized spray cans completely in an open area, free of sparks and flames.

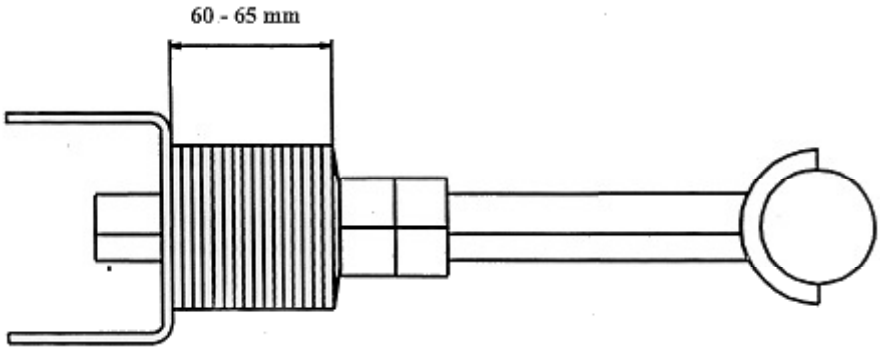
Electrical Equipment

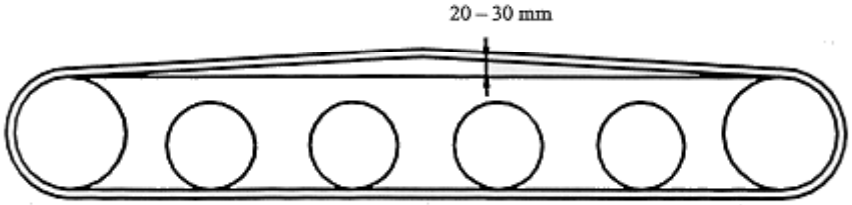
- When working on the electrical equipment always disconnect the battery (minus position).
- Make sure to reconnect in the correct order – first the plus position, then the minus position.
- Caution with battery gases – they are highly explosive.
- Avoid sparking and open flames, as well as smoking near the battery.
- Only use original fuses. Too strong fuses can destroy the electrical equipment.
- Activate the starter only for a short time, otherwise the coil will overheat. Let the starter cool down.
- Do not weld, drill, saw, or grind on the caterpillar or the safety frame. If damage has occurred, have the parts replaced.

Attachment Units

- Before attaching units, bring the 3-point system lever into proper position to avoid unintended raising and lowering.
- There is danger of injury when mounting attachments to the caterpillar.
- There is danger of pinching and cutting in the area of the 3-point system.
- Do not step between the caterpillar and the attachment during remote operation of the 3-point system.
- It is not allowed to stand between caterpillar and attachment if the vehicle is not secured against rolling with the locking brake and/or blocks.
- When driving curvy roads with connected or mounted attachments, also observe the extra length and the flymass of the attachment.
- Attachments may only be fastened with the recommended fastening devices.

Only operate the caterpillar when all safety guards are attached and in proper position.





Tensioning Device for Chain Tensioner

Help with Breakdowns

To avoid machine damage or life threatening injuries when handling breakdowns of the machine, the following points must be observed:

- Only attend to a breakdown if you are qualified to do so.

- First secure the machine against unintended restart by ...

- Ensure that the machine can be brought to a safe state by a second person at any time.

- Secure the operating range of moving machine parts.

- Also read chapter „General Safety Information“.

Cause	Remedy
Motor does not start	Check battery, check fuel/diesel, clean or change air filter
Caterpillar does not move	Check hydraulic oil, check hoses, check control lever, release brake, check brake mechanism, press interrupt button, read the motor manual

Warranty

NIKO-products are built using modern manufacturing technologies with a maximum of care, subjected to numerous quality controls.

This is why NIKO offers a 12 months warranty, if the following conditions are met:

1.) The warranty starts at date of purchase.

2.) The warranty includes material and manufacturing defects. For subsupplier parts (hydraulics, electronics, engine) we are only responsible to the extend of the warranty of the respective subsupplier. During the warranty period fabrication and material defects are handled free of charge by replacement or refitting of parts in question. Others, further claims, such as trade, discount, or damage compensation not concerning the delivered products are explicitly excluded.

Warranty claims are exclusively handled by authorized repair shops, NIKO-manufacturing representatives, or the manufacturer.

3.) Excluded from the warranty are damages due to wear, soiling, corrosion, and all faults caused by inappropriate use and its consequences. Also, unauthorized repairs or changes of original conditions void the warranty. No recovery of damages is possible if spare parts other than original NIKO-parts are used.

Therefore, please pay special attention to the operating instructions. Direct any questions you may have to our manufacturing representatives or directly to the manufacturer.

Warranty claims have to be submitted to the manufacturer within 30 days form the date of damage. Please provide the **date of purchase and the machine number** and use the warranty form provided.

Warranty repairs can only be carried out by an authorized repair shop, after consulting with NIKO. Please advise your repair shop accordingly.

Repairs done under warranty do not extend the warranty period!

Faulty transport is not a manufacturing fault, and therefore, is not the responsibility of the manufacturer.

4.) Claims for damages other than on the products itself are excluded. This includes liability for damages resulting from operating error. Unauthorized modifications to the product can lead to damages and release the shipper from any responsibility for these damages.